I. AMENDMENTS

IN THE CLAIMS

Please enter the amendments to claims 1, 15, 21, and 30, as shown below.

Please enter new claims 38-39, as shown below.

1. (Currently Amended) A calorimetric device comprising

a) a U-shaped calorimeter tube **comprising Silicon and** having an inlet end and an outlet end, and mounted onto a support at the inlet end and the outlet end**,** wherein the calorimeter tube comprises a ~~bimetallic~~ **coating** layer **comprising Aluminum, wherein the calorimeter tube** ~~that~~ bends in response to a temperature change in the calorimeter tube **due to different thermal expansions of the calorimeter tube and the coating layer**;

b) a capacitive sensor that detects the bending of the calorimeter tube due to different thermal expansions of the calorimeter tube and the coating layer ~~bimetallic layer~~; and

c) an integrated heating device that provides current through the ~~bimetallic~~ **coating** layer to heat the calorimeter tube and maintain a substantially constant temperature based on detected bending of the **calorimeter tube** ~~bimetallic layer~~ **due to the different thermal expansions of the calorimeter tube and coating layer**.

2-5. (Canceled)

6. (Original) The device of claim 1, wherein the device detects temperature changes in the range of from about 1 pJ to about 1000 pJ.

7. (Previously presented) The device of claim 1, wherein the calorimeter tube has a total volume capacity in a range of from about 1 μl to about 1 ml.

8-10. (Cancelled)

11. (Previously presented) The device of claim 1, wherein the calorimeter tube is enclosed in a vacuum.

12. (Original) An array comprising a plurality of the device of claim 1.

13. (Original) The array of claim 12, further comprising a data storage means.

14. (Original) The array of claim 12, further comprising a data analysis means.

15. (Currently Amended) A method of detecting a temperature change that occurs in a process, the method comprising

introducing a sample comprising a chemical reactant, a biological entity, or a macromolecule into the device of claim 1; and

detecting a bending of the calorimeter tube ~~bimetallic layer~~ with the capacitive sensor based on a temperature change in the calorimeter tube and different thermal expansions of the calorimeter tube and the coating layer; and

providing current through the ~~**bimetallic**~~ **<u>coating</u>** layer to heat the ~~**reaction vessel**~~ **<u>calorimeter tube</u>** and maintain a substantially constant temperature based on the detected bending of the **<u>calorimeter tube</u>** ~~**bimetallic layer**~~ **<u>due to the different thermal expansions of the calorimeter tube and coating layer</u>**.

16. (Original) The method of claim 15, wherein the process is selected from a chemical reaction, a biochemical reaction, a binding reaction, a physical process, a light-induced process, and a biological reaction.

17-20. (Canceled)

21. (Currently Amended) A calorimetric device comprising

a) a U-shaped reaction vessel **<u>comprising Silicon and</u>** having an inlet and an outlet, and mounted onto a support at or near the inlet and the outlet, wherein the reaction vessel comprises a ~~**bimetallic**~~ **<u>coating</u>** layer **<u>comprising Aluminum, wherein the reaction vessel</u>** ~~**that**~~ bends in response to a change in temperature **<u>in the reaction vessel due to different thermal expansion of the reaction vessel and the coating layer</u>**;

b) a capacitive sensor that detects the bending of the reaction vessel due to different thermal expansions of the reaction vessel and the coating layer ~~bimetallic layer~~; and

an integrated heating device that provides current through the ~~**bimetallic**~~ **<u>coating</u>** layer to heat the reaction vessel and maintain a substantially constant temperature based on the detected bending of the **<u>reaction vessel</u>** ~~**bimetallic layer**~~ **<u>due to the different thermal expansions of the reaction vessel and coating layer</u>**.

22-29. (Cancelled)

30. (Currently Amended) A method of detecting a temperature change that occurs in a process, the method comprising

introducing a sample comprising a chemical reactant, a biological entity, or a macromolecule into the device of claim 21; and

detecting a bending of the reaction vessel ~~bimetallic layer~~ with the capacitive sensor based on a temperature change in the reaction vessel and different thermal expansions of the reaction vessel and the coating layer; and

providing current through the **~~bimetallic~~** **coating** layer to heat the reaction vessel and maintain a substantially constant temperature based on the detected bending of the **reaction vessel** **~~bimetallic layer~~** **due to the different thermal expansions of the reaction vessel and coating layer**.

31. (Previously presented) The method of claim 30, wherein the process is selected from a chemical reaction, a biochemical reaction, a binding reaction, a physical process, a light-induced process, and a biological reaction.

32-35. (Canceled)

36. (Previously presented) The device of claim 21, wherein the reaction vessel has a total volume capacity in a range of from about 1 μl to about 1 ml.

37. (Previously presented) The device of claim 21, wherein the reaction vessel is enclosed in a vacuum.

38. (New) The device of claim 21, wherein the support comprises a contact to a thermistor for interconnection to a temperature detection system, and wherein the support comprises a contact pad for bimetallic heating for interconnection to a temperature control system.

39. (New) The device of claim 38, wherein the support comprises:

an inlet line;

a valve system that opens and closes the inlet line, wherein the valve system is controlled by a flowmeter that is coupled to the valve system;

an outlet line; and

a flush line.